CONFIDENTIAL

File # 02237

797265

REGISTERED

30 December 1966

[redacted] 25X1

To: Contracting Officer

Subject: Contract No. [redacted] 25X1
Request for Change in Scope and Additional Funds

Gentlemen:

Based on recent experience obtained with the assembled Model 635 Film Viewing Table presently under development at [redacted] it has become apparent that changes are necessary in the basic design concept of the equipment to make it more desirable for use. The present equipment is designed and has been constructed in full accordance with the design objectives as specified in the contract. The change proposed herein is beyond the scope as originally defined and will require a specification change as well as an increase in contract cost. 25X1

The problem stems from the mounting location and configuration with respect to the [redacted] Microscope. The concept for use of equipment is that the operator will be seated in a conventional office chair. The technical representative has informed us that the operator will not use a high drafting stool or operate in a standing position. From human engineering and operating efficiency standpoints, it is necessary that a comfortable chair be used. With this restriction on the use of the equipment, it is not possible to use the equipment as originally conceived. The investigation and proposed change described below we feel fully accomplishes the objectives as verbally discussed with the Contracting Officer's Technical Representative. 25X1

An investigation has been made into possible solutions to this problem at the request of the Contracting Officer's Technical Representative. Various solutions have been considered, including extending the travel of the microscope toward the front of the instrument to put the eyepieces in a more convenient viewing position. However, all approaches along this avenue have resulted in some compromise with the original design objectives, such as reduction of microscope coverage, interference of rhomboids with support castings, or interference with controls. It was decided that the basic problem could not be remedied in this manner without sacrificing other desirable features of the existing equipment. Consequently a different approach was taken in which the basic instrument remains essentially unchanged and an accessory is added to the microscope to permit comfortable viewing. This latter approach is our proposed solution based on considerations of cost, instrument capability, human engineering and delivery.

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The proposed modification consists of an accessory eyepiece assembly which fits onto the [redacted] Microscope and permits the eyepieces to be moved out toward the operator by approximately eight inches. The angle of the eyepiece is also changed to a more favorable one. No modifications or changes are required of the microscope. The same interchangeable eyepieces are merely moved closer to the operator by use of a 1:1 relay system with associated mirrors and field lens. 25X1

By using the proposed accessory eyepiece the following advantages are realized:

1. The tilt of the eyepiece can be optimized from the human engineering standpoint.

2. The advantages of the present design of the machine are retained. No changes in carriages are necessary. The "Y" motion remains relatively small, i.e., 6", where all the knobs are convenient to the operator. It also retains the advantages that rhomboids cannot accidentally hit the support casting.

3. The eyepieces are interchangeable. The operator can still use a drafting stool and use same eyepieces, without relays.

4. The operator may use the equipment when the rhomboids are swung toward the observer. He can easily position the pointer over the area of interest.

5. The operator can view the whole format with the microscope.

The proposed system already has been breadboarded in [redacted] using the [redacted] Microscope. Performance was found to be excellent. Using the same [redacted] 10X wide angle eyepiece, the resolution and field of view was checked before and after the addition of the relay optics. It was apparent that the deterioration of resolution is less than 10% and is, in effect, hardly measurable. The field of view remains unchanged. Light loss will be held to less than 20% by use of coated lenses and high efficiency reflecting mirrors. 25X1 25X1 25X1

The assembly will be constructed to the highest commercial standards.

An aluminum alloy will be used for main parts to minimize weight and all other metal parts will be of corrosion resistant materials. The weight of the unit will not exceed 1.5 pounds. Interpupilary distance will be adjustable from 55 to 75mm and a locking device will be provided.

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The development effort will begin with analysis of the human engineering aspects of the viewing problem to determine the most favorable position of the eyepieces for most operators. This will be followed by a breadboard system to determine exact performance characteristics and to finalize the optical components. The final design will then be converted to manufacturing drawings and a prototype unit fabricated. We believe, that with a reasonable effort, this whole development process will take six weeks.

[redacted] has evaluated the cost of performing the design and modification of the microscope extension as described above. The cost analysis sheet is attached. We request that the contract be modified by increasing the contract value by [redacted] The target fee would be increased by [redacted] All other terms and conditions of the contract, including incentive, remain as at present. Effort on final assembly and checkout of the Model 635 will continue without interference with this proposed modification. Once [redacted] receives authority to proceed with the proposed modification, we will require six weeks to final delivery of the end item as modified. This quotation shall remain valid for sixty (60) days from the date of this letter. If we can provide any additional information, please don't hesitate to contact us.

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The Contracting Officer's technical representative has requested a budgetary price for a production quantity of these microscope extensions. Very little time has been allowed for making such a budgetary estimate, but to our best knowledge it is believed at this time the production price will be as follows:

Quantity	Price
10	[redacted]
20	
40	

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We would suggest that if you are interested in a production quotation for the microscope extension, the formal request for quote be submitted, at which time a finalized price will be sent.

Very truly yours,

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Executive Vice President

LHB:aw
Enc. (2) Cost Analysis Sheet

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